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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/031,815	01/17/2002	David Layden	501737	8176
23626	7590	06/07/2005		
LEYDIG VOIT & MAYER, LTD. (ROCKFORD OFFICE) TWO PRUDENTIAL PLAZA, SUITE 4900 180 NORTH STESTON AVENUE CHICAGO, IL 60601-6780				
			EXAMINER TIBBITS, PIA FLORENCE	
			ART UNIT 2838	PAPER NUMBER

DATE MAILED: 06/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/031,815	LAYDEN ET AL.	
	Examiner	Art Unit	
	Pia F. Tibbits	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>5/20/2002(3 pgs)</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office action is in answer to the preliminary amendment filed 9/27/2002. Claims 1-27 are pending, and claims 28-59 were canceled.

Priority

1. This application is a national stage entry of PCT/US01/10083.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the power modules, the battery chargers, the plurality of battery channels coupled in parallel, the presence detector, the series coupling, etc. must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

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4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter: "first nominal value", "first predetermined amount", "second nominal value", "third nominal value", etc. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-14, 22-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over prior art disclosed by applicant, **Reeves et al.** [hereinafter Reeves][6020743] in view of **Finger** [4460870].

As to claim 22, the recitation "battery packs, power modules, or battery chargers" is confusing due to the use of "or" because it is not clear what applicant is actually claiming. Furthermore, applicant is reminded that "or" should only be used with alternate terms, e.g., rod or bars, etc.

The limitation "the voltage sense selector circuit" was interpreted in light of the specification, which describes that it comprises "a shift register **sequentially** generating a number of output enable signals in response to the clock input and the slot select input from the controller".

Reeves discloses in figures 1A-5 a system for detecting defective battery packs in a modular, redundant uninterruptible power supply (UPS) system, the UPS system having a plurality of parallel connected slots into which may be coupled the battery packs [see fig.1B], power modules, or battery chargers as determined and configured by a user, each slot being adapted to accommodate two battery packs and to provide a series coupling there between, the system comprising: a voltage sense circuit 114 coupled to each series coupling of each slot M1-M3 and operable to generate a voltage sense signal in response to a voltage present thereon; a controller 116 operably coupled to the voltage sense circuit to

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command the voltage sense circuit to enable of a particular voltage sense circuit for a particular slot, the controller reading the voltage sense signal for the particular slot from the voltage sense circuit; and wherein said controller compares the voltage sense signal for the particular slot to a predetermined expected value and identifies an operational status of the battery packs based thereon [see the abstract; column 2, line 3; column 5, lines 43-55; column 6, lines 28-31]. Reeves describes in fig.2 that the voltage is measured across the first portion of battery cells [step 200], across the second portion of battery cells [step 202], etc., i.e., sequentially. However, Reeves does not specifically disclose a voltage sense selector circuit coupled to each of the voltage sense circuits, the voltage sense selector circuit operable to selectively enable the voltage sense circuits.

Finger discloses in figures 1-10 a shift register 80 responding to a clock counter output and shifting logic positions in order to detect successive time sample intervals [see fig.4; column 8, lines 14-24]. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Reeves' apparatus and include voltage sense selector circuit including a shift register, as disclosed by Finger, in order to detect successive time sample intervals of the battery.

As to claim 23, Reeves calculates the voltage difference between voltage V1 of the first portion of the battery 100 and voltage V1 of the second portion of the battery 100. After determining a voltage difference, in step 302, the battery tester determiner 116 determines a voltage ratio by dividing the voltage difference by the voltage across the combination of battery cells V3, and compares it to a threshold value. With regard to calculating average voltage value, and compares the voltage sense signal for each slot to the average voltage value to identify the operational status of the battery packs for each slot With respect to claims 1-6: the use of an average voltage value, absent any criticality, is only considered to be the use of "optimum" or "preferred" value for a variable that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to use since it has been held to be a matter of **obvious design choice** and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of

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the invention. See *In re Leshin*, 125 USPQ 416. Under some circumstances, however, changes such as these may impart patentability to a process if the particular values claimed produce a new and unexpected result, which is different in kind and not merely in degree from the results of the Prior Art. *In re Dreyfus*, 22 CCPA (Patents) 830, 73 F.2d 931, 24 USPQ 52; *In re Waite et al.*, 35 CCPA (Patents) 1117, 168 F.2d 104, 77 USPQ 586. Such values are termed "critical", and the applicant has the burden of proving such criticality. *In re Swenson et al.*, 30 CCPA (Patents) 809, 132 F.2d 1020, 56 USPQ 372; *In re Scherl*, 33 CCPA (Patents) 1193, 156 F.2d 72, 70 USPQ 204. However, even though applicant's modification results in great improvement and utility over the Prior Art, it may still not be patentable if the modification was within the capabilities of one skilled in the art. *In re Sola*, 22 CCPA (Patents) 1313, 77 F.2d 627, 25 USPQ 433; *In re Norman et al.*, 32 CCPA (Patents) 1248, 150 F.2d 627, 66 USPQ 308; *In re Irmischer*, 32 CCPA (Patents) 1259, 150 F.2d 705, 66 USPQ 314. More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Swain et al.*, 33 CCPA (Patents) 1250, 156 F.2d 239, 70 USPQ 412; *Minnesota Mining and Mfg. Co. v. Coe*, 69 App. D.C. 217, 99 F. 2d 986, 38 USPQ 213; *Allen et al. v. Coe*, 77 App. D. C. 324, 135 F.2d 11, 57 USPQ 136.

As to claim 24, Reeves discloses the controller reads the voltage sense signal for each slot in which battery packs are installed during a float charge mode, compares the voltage sense signal for each slot to an expected voltage value for the float charge mode, and identifies a first one of the battery packs in a slot as defective when the voltage sense signal for the associated slot is less than the expected voltage value for the float charge mode, and identifies a second one of the battery packs in a slot as defective when the voltage sense signal for the associated slot is greater than the expected voltage value for the float charge mode [see the abstract; column 1, lines 44-50; column 2, lines 28-43; column 3, lines 4-10; column 4, lines 7-24].

As to claim 25, Reeves discloses the controller reads the voltage sense signal for each slot in which battery packs are installed during a discharge mode, compares the voltage sense signal for each slot to an expected voltage value for the discharge mode, and identifies a first one of the battery packs in

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a slot as defective when the voltage sense signal for the associated slot is less than the expected voltage value for the discharge mode, and identifies a second one of the battery packs in a slot as defective when the voltage sense signal for the associated slot is greater than the expected voltage value for the discharge mode [see column 1, line 27; column 3, line 34].

As to claim 26, see remarks and references for claim 22 above.

As to claim 27, Reeves and Finger disclose switching transistors 90 and 92 [see column 9, line 25]. As to the use of a metal oxide silicon field effect transistor (MOSFET), absent any criticality, is only considered to be the use of "optimum" or "preferred" material that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to provide for the switching transistors in order to increase the response speed, disclosed by Reeves and Finger, since it has been held to be a matter of obvious design choice and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention. See *In re Leshin*, 125 USPQ 416.

As to the method claim 1, Reeves and Finger disclose the steps of: monitoring a voltage at a midpoint between the two battery packs during a quiescent state of operation of the battery packs [see column 6, line 45]; comparing the voltage to a first nominal value for the midpoint voltage during the quiescent state of operation of the battery packs; indicating a lack of operational readiness of both battery packs when the voltage at the midpoint is less than the first nominal value by a first predetermined amount [see the abstract; column 8, lines 54-57; column 10, lines 1-10 and 62-64; column 11, lines 42-63].

As to the method claims 2-13: see remarks and references for claim 1 above.

7. Claims 12-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Reeves and Finger** in view of prior art disclosed by applicant, **PK Electronics**.

To continue prosecution it was assumed the channels are the slots 30.

Reeves and Finger do not disclose a plurality of battery channels coupled in parallel with one another.

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PK Electronics describes a UPS, US9001, including battery-modules plugged into available slots that run independently to ensure that the system will not stop even when any one of the modules fails. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Reeves' and Finger's apparatus and include a plurality of battery channels coupled in parallel with one another, as disclosed by PK Electronics, in order to ensure that the UPS system will not stop even when any one of the modules fails.

As to claim 15, PK Electronics describes an Intelligent Serial Interface RS232, which is part of the UPS, US9001, to detect a presence and type of equipment installed in each slot.

As to identifying a failed battery pack in an uninterruptible power supply (UPS) system, the UPS system having a plurality of parallel connected slots into which may be coupled battery packs: Reeves, Finger and PK Electronics disclose the claimed invention except for a plurality of parallel connected slots into which may be coupled battery packs. It would have been obvious to one having ordinary skill in the art at the time the invention was made to identifying a failed battery pack in an uninterruptible power supply (UPS) system, the UPS system having a plurality of parallel connected slots into which may be coupled battery packs, since it has been held that mere duplication of parts has no patentable significance unless a new and unexpected result is produced. *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960) and MPEP 2144.04.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: prior art disclosed by applicant, "A systems approach to telecom battery monitoring and control using the rectifier power plant" describes "Mid-Point Voltage Monitor", and "Middle-point voltage comparison as a simple and practical but effective way to ensure battery system's capacity to perform" describes a theoretical "middle point voltage". The prior art cited in PTO-892 and not mentioned above disclose related apparatus.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Pia Tibbits whose telephone number is (571) 272-2086. If unavailable, contact the Supervisory Patent Examiner Mike Sherry whose telephone number is (571) 272-2084. The Technology Center Fax number is (703) 872-9306.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PFT

June 1, 2005

Pia Tibbits

Primary Patent Examiner

